

Applicant(s): Sung-bae Park, *et al.*
Serial No.: 09/924,787

REMARKS

Claim 3 is objected to because of an informality. The claim is amended such that it is believed that the objection is overcome. Reconsideration of the objection is requested.

Claims 1 and 4 are rejected under 35 U.S.C. § 103(a) as being obvious over Applicant's Prior Art Drawings in view of Geissler, *et al.* (U.S. Patent No. 6,245,600). Claim 2 is rejected under 35 U.S.C. § 103(a) as being obvious over Applicant's Prior Art Drawings in view of Geissler, *et al.* and Adan, *et al.* (U.S. Patent No. 5,841,170). Claim 3 is rejected under 35 U.S.C. § 103(a) as being obvious over Applicant's Prior Art Drawings in view of Geissler, *et al.* and Hashimoto, *et al.* (U.S. Patent No. 5,475,257). Claim 5 is rejected under 35 U.S.C. § 103(a) as being obvious over Applicant's Prior Art Drawings in view of Geissler, *et al.* and Lynch, *et al.* (U.S. Patent No. 4,646,123). Claim 6 is rejected under 35 U.S.C. § 103(a) as being obvious over Applicant's Prior Art Drawings in view of Geissler, *et al.*, Lynch, *et al.* and Abiko, *et al.* (U.S. Patent No. 6,051,472). In view of the amendments to the claims and the following remarks, the rejections are respectfully traversed, and reconsideration of the rejections is requested.

The applicants' invention is directed to a silicon-on-insulator (SOI) MOSFET. The MOSFET includes a substrate, a buried oxide layer formed on the substrate, a body formed on the buried oxide layer, wherein the body is an active region of a transistor. A gate oxide layer is formed on the body, and a gate is formed on a gate oxide layer. An isolation region is formed adjacent to and at least partially surrounding the body. A body contact supplies power to the body. The body contact is at least partially surrounded by a field oxide region which is formed in the isolation region. The body contact is formed by forming a trench that perforates the isolation region, the field oxide region, the body and the buried oxide layer and filling the trench with a conductive material so that the body is electrically connected to the semiconductor substrate.

The claims have been amended to more clearly specify the structure of the invention. Specifically, the claims are amended to recite the field oxide region formed in the isolation region and at least partially surrounding the body contact. None of the prior art references teaches or suggests the features of the invention set forth in the amended claims.

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The applicants' prior art drawings do not teach or suggest the body contact of the amended claims. They also do not teach or suggest the field oxide region formed in an isolation region and at least partially surrounding the body contact, as now set forth in the amended claims.

The Geissler *et al.* patent discloses various structures having charge dissipation paths for eliminating electrostatic discharge in SOI wafers. The various disclosed charge dissipation paths 18 are not body contacts for supplying power to a SOI structure body. The applicants' claims specifically recite a body contact supplying power to the body and being formed as a trench perforating an isolation region, a field oxide region, the body and a buried oxide layer. The Geissler *et al.* charge dissipation paths are not body contacts. Furthermore, Geissler *et al.* do not teach or suggest the field oxide region formed in the isolation region and at least partially surrounding the body contact, as now set forth in the amended claims.

Neither of the applicants' prior art drawings and the Geissler *et al.* patent teaches or suggests the body contact and field oxide layer set forth in the amended claims. Accordingly, no combination of the references can result in teaching or suggesting the applicants' invention. Accordingly, it is believed that the amended claims are allowable over the cited prior art, and reconsideration of the rejections of claims 1 and 4 under 35 U.S.C. § 103(a) based on the applicants' prior art drawings and Geissler *et al.* is respectfully requested.

With regard to claim 2, Adan, *et al.* also fail to teach or suggest the body contact set forth in the amended claims. Adan, *et al.* also fail to teach or suggest the field oxide region set forth in the amended claims. Accordingly, the combination of the Applicant's Prior Art Drawings, Geissler *et al.* and Adan, *et al.* fails to teach or suggest the inventions set forth in the amended claims. Accordingly, reconsideration of the rejection of claim 2 under 35 U.S.C. § 103(a) is respectfully requested.

With regard to claim 3, Hashimoto, *et al.* also fail to teach or suggest the body contact set forth in the amended claims. Hashimoto, *et al.* also fail to teach or suggest the oxide region set forth in the amended claims. Accordingly, reconsideration of the rejection of claim 3 under 35 U.S.C. § 103(a) is respectfully requested.

With regard to claim 5, Lynch, *et al.* also fail to teach or suggest the body contact set forth in the amended claims. Lynch, *et al.* also fail to teach or suggest the body contact set forth

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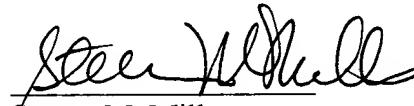
in the amended claims. Accordingly, reconsideration of the rejection of claim 5 under 35 U.S.C. § 103(a) is respectfully requested.

With regard to claim 6, Lynch, *et al.* and Abiko, *et al.* fail to teach or suggest the body contact set forth in the amended claims. Lynch, *et al.* and Abiko, *et al.* fail to teach or suggest the oxide region set forth in the amended claims. Accordingly, reconsideration of the rejection of claim 6 under 35 U.S.C. § 103(a) is respectfully requested. Attached hereto is a marked-up version of the changes made to the application by the current Amendment. The attached pages are captioned "Version with Markings to Show Changes Made."

In view of the foregoing remarks, it is believed that all claims pending in the application are in condition for allowance, and such allowance is respectfully solicited. If a telephone conference will expedite prosecution of the application, the Examiner is invited to telephone the undersigned.

Respectfully submitted,

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Version with Markings to Show Changes Made

In the Claims

The claims have been amended as follows:

1. (Twice Amended) A silicon-on-insulator metal oxide semiconductor field effect transistor (SOI MOSFET) comprising:

a semiconductor substrate;

a buried oxide layer formed on the semiconductor substrate;

a body on the buried oxide layer, the body being an active region of a transistor;

a gate oxide layer formed on the body;

a gate formed on the gate oxide layer;

an isolation region adjacent to and at least partially surrounding the body; [and]

a field oxide region formed in the isolation region, the field oxide region at least partially surrounding the body contact; and

a body contact supplying power to the body,

wherein the body contact is formed by forming a trench that perforates the isolation region, the field oxide region, the body, and the buried oxide layer and filling the trench with a conductive material so that the body is electrically connected to the semiconductor substrate.

3. (Twice Amended) The SOI MOSFET of claim 1, wherein the conductive material is formed of one material selected from the group consisting of a metal layer, a tungsten layer, a silicon epitaxial layer, and a combination layer of at least two of the following: a metal layer, a tungsten layer and a silicon epitaxial layer.